



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,804	07/24/2001	Surya Prakash	06618/408002/CIT2942-D	7226
20985	7590	03/29/2004	EXAMINER	
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			MERCADO, JULIAN A	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/912,804

Applicant(s)

PRAKASH ET AL.

Examiner

Julian Mercado

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 6-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Remarks***

This Office action is responsive to applicant's amendment filed January 7, 2004.

### ***Election/Restrictions***

Newly submitted "method of forming" claims 6-10 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

1) The process as claimed, in reciting a method for forming an electrochemical membrane, can be used to make other and materially different product such as a catalyst ink which is applied to the fuel cell electrode, i.e. an electrochemical electrode.

2) The product as claimed can be made by another and materially different process such as a process which omits the claimed roughening step of the membrane material, in recognition of the resulting deleterious effects to the integrity of the membrane along with the requirement for an additional process step.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 6-10 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 112***

The rejection of claims 4 and 5 under 35 U.S.C. 112, second paragraph has been obviated by applicant's amendment.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Independent claim 1 recites a "solution" of catalytic material. This feature of the claimed invention is not found enabling in view of the specification's lack of disclosure of a catalytic ink solution. The catalytic material is not disclosed as soluble, in fact, it appears to the examiner that it remains in solid form such as in a suspension or dispersion. See the Example on page 7 of the disclosure, taking note that sonication is used to allow for mixing of the components. The examiner notes applicant's literal use of the term "catalytic ink solution" on page 6 line 9, however, the claimed "solution of catalytic material" that is "substantially homogeneously mixed throughout the solution" is not enabled by the original disclosure. With respect to the claimed homogeneously mixed catalytic solution, the examiner also notes that the original disclosure discloses a homogeneous mix solely to the extent that the bi-metallic powders of Pt and Ru are homogeneous powdered materials and not as in solutions. (see specification on page 4 line 28 et seq.)

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Cabasso et al. (U.S. Pat. 5,783,325).

The rejection is maintained for the reasons of record. Applicant's amendment now calls for a solution of catalytic material. To the extent that this feature is believed enabling for the reasons discussed under the 35 U.S.C. 112, first paragraph rejection (discussion above), Cabasso et al. is asserted to teach this feature in that the catalyst ink is substantially mixed into the poly(vinylidene fluoride) colloidal solution, i.e. as a suspension, with ultrasonication to ensure as much of a homogenous mix as possible. (col. 10 line 9-24)

Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Narayanan et al. (U.S. Pat. 5,945,231)

The rejection is maintained for the reasons of record. Applicant's amendment now calls for a solution of catalytic material. To the extent that this feature is believed enabling for the reasons discussed under the 35 U.S.C. 112, first paragraph rejection (discussion above), Narayanan et al. teaches that the Pt:Ru catalytic material catalytic material as a mixture with

Art Unit: 1745

poly(vinylidene fluoride) is homogenously mixed with a first and second sonication treatment.

(col. 4 line 5-10)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Denton et al. (U.S. Pat. 5,865,968) in view of Cabasso et al. as applied to claims 1 and 2 above and as evidenced by the Dupont™ Nafion® PFSA Polymer Dispersions product information guide.

The rejection is maintained for the reasons of record. As to a solution of catalytic material, to the extent that this feature is believed enabling for the reasons discussed under the 35 U.S.C. 112, first paragraph rejection (discussion above), Denton et al. teaches that the catalyst material mixture is “redispersed using a high shear mixer to produce a smooth mixture”. (col. 7 line 44-51)

### ***Response to Arguments***

Applicant's arguments filed with the present amendment have been fully considered but they are not persuasive. Applicant submits that simply adding the two materials together will not provide a homogenous mixture as claimed. By “two materials”, it is interpreted that applicant is combining the catalyst ink (as the first material) with poly(vinylidene fluoride) (as the second

Art Unit: 1745

material). To the extent that this feature is believed enabling for the reasons discussed under the 35 U.S.C. 112, first paragraph rejection (discussion above), this argument is not persuasive in view of the prior art teachings detailed above combining the two materials with a sonication or high shear step to, e.g. "produce a smooth mixture" of the catalytic ink with the poly(vinylidene) fluoride. (Denton et al., *ib*)

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

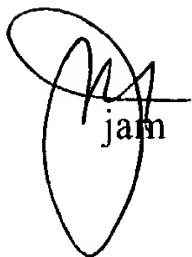
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

Art Unit: 1745

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Patrick Ryan  
Supervisory Patent Examiner  
Technology Center 1700